

R C

311

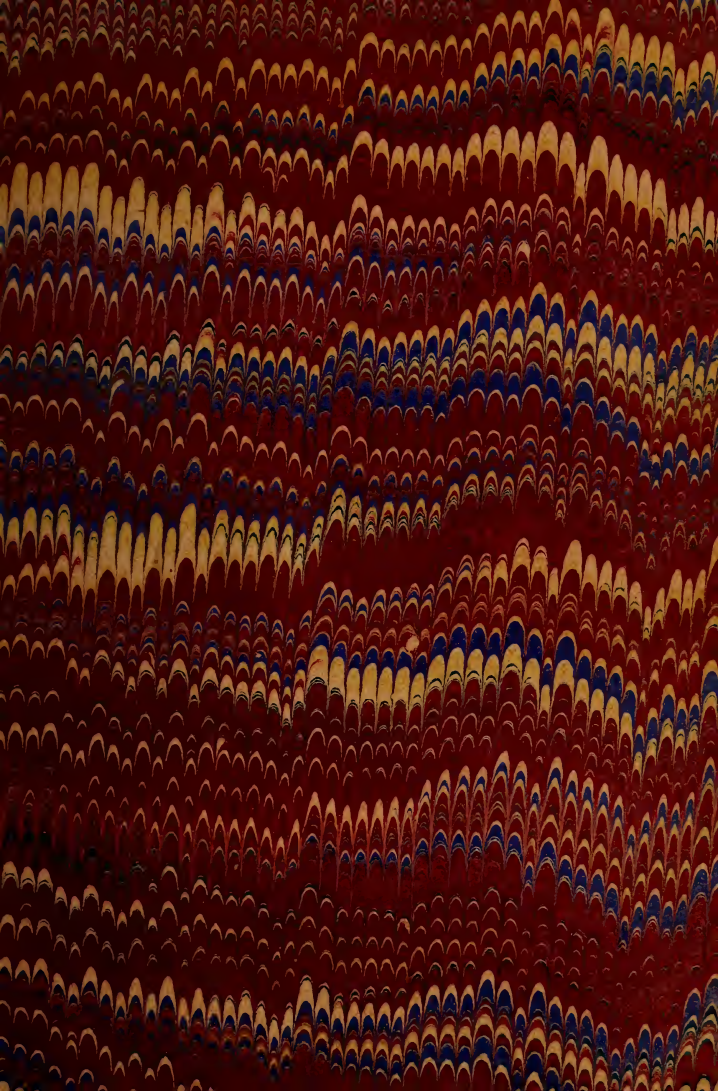
P26

LIBRARY OF CONGRESS.

Chap. RC 311

Shelf P 26

UNITED STATES OF AMERICA.



A PRACTICAL THEORY.....

— AND TREATMENT OF

PULMONARY TUBERCULOSIS.

—
BY:

FRANK S. PARSONS, M. D., *a*

PHILADELPHIA.

No. 1111

A PRACTICAL THEORY AND
TREATMENT OF PULMON-
ARY TUBERCULOSIS.

BY FRANK S. PARSONS, M. D.,

PHILADELPHIA, PA.

Editor of "The Times and Register."



PUBLISHED BY

THE MEDICAL PUBLISHING Co.,

No. 718 Betz Building, Philadelphia, Pa.

10
4241

R 331
P 26

To those physicians whose interest in Pulmonary Tuberculosis is paramount and those sufferers of this dreaded disease, who desire relief and encouragement, this little volume is affectionately dedicated.

718 Betz Building, January 28th, 1895.

LC Control Number



tmp96 028683

INTRODUCTORY.

Is pulmonary tuberculosis curable? Undoubtedly! When? At any time before destructive changes have advanced to a point beyond which the organism is incapable of sustaining life; or, before the primary cause of such changes in retrograde metamorphosis has become lost in the secondary pathological processes, which of themselves, would advance the organism toward ultimate dissolution. Of course, the curability of any disease, in a measure, depends upon an intimate knowledge of its causation and a rectifying of disturbed relations, and, in this, the physician must have the hearty co-operation of his patient. The latter is not always an easy matter to bring about in tuberculosis, for persons afflicted with this disease are prone to disbelieve the diagnosis of the physician, in the forlorn hope that he may be mis-

taken, or that it is quite impossible for them to become the victims of so dangerous a malady.

It is not my idea, in presenting this paper before the profession, to add to the general confusion, which now reigns, regarding tuberculosis; nor to attempt to laud any new methods above others in vogue; but, I believe, a clearer light may be thrown upon the etiology and treatment of this disease, based upon the successes and failures of the past, and the recognition of the primitive condition which leads to the development of pulmonary tubercles.

Of one thing I am quite confident, that is, we may search and search in vain for the antidote, or specific medication in tuberculosis, unless we get off the track of the microbe, and develop the cause for the underlying condition, upon which the development of all bacteria must depend.

We should be thankful for the

work of the bacteriologist; the researches of this class of men have taught us much, although the germ has been the uppermost theme, and its products of toxins and toxalbumens, as the misty clouds which obscure the light of underlying pathology, have given us doubtful ideas regarding the etiology of disease. We have lost sight of the chemical composition of man, and the fact that disease is only a chemical decomposition, in the universal furor after a specific germ, the phenomena of which may be observed in various media, in and outside the body. We have been scientifically brought face to face with that ancient but burning question as to which was first, the chicken or the egg? We are conscientiously taught that no disease can develop except from its germ, and that no germ can develop except from its disease.

In view of the many vaunted methods of treatment in cases of pul-

monary tuberculosis, some of which have certain values, others of which are worse than useless, we may well look deeper into the underlying phenomena of this disease, and ascertain, if possible, the primitive causes, the earlier symptoms, and base on them the more radical treatment.

In the first place, it is to be borne in mind that no two cases of pulmonary tuberculosis should receive identical treatment, solely because they are tubercular cases. Personal idiosyncrasies must be taken into account, modes and circumstances of life, the stage of the disease, and a thousand minor details, which the well-informed physician considers and governs his treatment accordingly.

CONCERNING THE ETIOLOGY OF TUBERCULOSIS.

The developments from the experimental inoculation of animals with cultured tubercle bacilli, during the past decade, have gone so far that the profession is now beginning to see that there is yet considerable to be learned concerning the causation of tuberculosis. In fact, it has been evident for some time that we have allowed the bacillus craze to get beyond our better judgment.

It cannot be denied that the tubercle bacillus plays an important part in the phenomenal expression, if not the etiology of tuberculosis, but the facts are daily being brought to light which tend to prove that the bacillus alone, as a causative agent in this disease, is as inefficient as a grain of wheat is ungerminative without sunlight, air and moisture.

When is considered the impunity

with which colonies of tubercle bacilli have been swallowed, we must fall back on the certainty of a pre-existing condition, which, when present, offers favorable influence for the development of the bacilli, and on which the latter depend for support; or, otherwise, that the bacteria are a product of the disease, and causative only as they have the power of reproducing themselves, and, when in great numbers, of acting as foreign bodies. That tubercle bacilli reproduce themselves is not doubted, but this simple fact does not argue anything, as it is no more than does the animal kingdom in general. If they produce toxalbumens, as is asserted, it may well be asked if anyone knows what a toxalbumen is, and the exact effect on the human organism? This no one knows at present, and it is not always apparent that the term is more than a cloak for ignorance, or to cover a

theory that there must be some toxic product from bacteria in the albuminous elements of the blood to cause specific disease. For our purpose, then, the tubercle bacillus, per se, can act only as a foreign body.

If, before the appearance of tubercle bacilli in this disease, there be a condition upon which the causation depends (and there seems to be no doubt that this is the case) a short consideration of the anatomical and physiological relations of the circulation will, I believe, demonstrate how such condition may arise, and of what it must necessarily consist.

Hardly an autopsy is made without it is seen that some time during the life of the subject tubercles had been present in the lung, or in other tissues of the body, which tubercles had resolved, or had been discharged. We know that to obtain cicatricial repair of lung tissue, a suppurative process must have coexisted, and

that suppuration never takes place where there is not interference with, or stasis of the circulation of a part involved. In other words, there is a loss of normal correlation between the supply of arterial blood, carrying oxygen and nutrition to the part, and the venous blood, bearing away the carbonic acid gas and waste tissue elements. The waste is carried by the circulation to the several organs in the animal economy best calculated to excrete it, and the venous blood becomes reoxidized in the lungs, losing its carbon dioxide.

Essentially, then, perfect tissue repair is one with perfect circulation, and, conversely, any stasis to the circulation prevents perfect repair. Especially is this true of either venous or lymphatic stasis.

Any suppurative action must have origin in an obstruction to circulation in the part affected, and resolution occurring during any stage de-

depends on the re-establishing of normal correlation in the entire circulation of such diseased tissue. Abscess formation is nature's way of ridding tissues of abnormal waste when the circulation is impeded.

But circulation in the animal system is a complex phenomenon, physiologically of two kinds, afferent and efferent; anatomically of three kinds, arterial, which is superabundantly generous for nutrition; venous, which is inadequate for the removal of all the excess; lymphatic, which supplements the office of the veins in removing waste. A vigorously acting lymphatic system precludes danger from tissue stasis in rapidly wasting parts, while inactivity of the system implies obstruction from stasis.

This point was admirably illustrated by the eminent oral surgeon, Dr. James E. Garretson, several years back, in a paper read before

the Pathological Society of Philadelphia, but which has never been published to my knowledge. The illustration draws attention to a circle, as representing a part, or every part of the human body, in the continuous process of building and razing. Material is brought to it. Rubbish is to be taken away. Debris calls for the work of the scavenger acting as supernumerary to the removal of rubbish. These bringers and takers are the arteries, veins and lymphatics. The first brings material; brings it in excess. The second carries away the excess; carries away the rubbish as well. The third cleans up generally.

It is this third factor in the circulation that most concerns us in the etiology of tuberculosis, and a brief consideration of the functions of the lymphatic system will aid in the clear understanding of their relation to the causation of disease.

First, inquiry as to the relation of the lymphatics with the secretory system of glands develops the fact that both the conglobate and racemose varieties have identical offices of excremental and recremental signification. The lymphatic system, therefore, must be one whose functions imply the taking of material from a relation with parts that do not need it, and placing it in relation with parts that do; i. e., the lymphatics take care of excess of nutritious elements and return them to the general circulation.

We may logically distinguish the lacteals and lymphatics as belonging to different systems. It is true that both characters of vessels hold pabulum, a fact which does not argue against the lymphatic as being a system, the office of which is purely emunctory; for the pabulum found in these vessels, that is not excreta in the strict sense, is so in signifi-

cance, being an excess of nutritional material which would speedily assume the form of an irritant were it not removed to a new situation; as implied in its restoration to the general circulation.

The lymphatic system, then, excluded from the lacteals, being accepted as primal emunctory organs, it must follow that glands like the pancreas, liver, kidneys, etc., must be considered as secondary, or excremental emunctories.

Bile, urine, perspiration and the secretion of all the other excrementitious glands (as physiological meaning is given the word excrement) are phenomena of the blood, and are dependent on tissue metamorphoses. Tissue metamorphoses ceasing, secondary secretion ceases also, and death ensues. Tissue metamorphoses ceases to be physiological in proportion as the lymphatic system becomes pathological; that is, tissue

metamorphoses is not an act in relation with racemose glands.

Reverting to our first corollary, that perfect tissue repair is one with perfect circulation, it is now seen that perfect health is identical with perfect excretory function, or, in other words, with perfect elimination.

Again, considering our converse proposition, we may now also see how default in lymphatic action is the starting point out of which may arise many phenomena of disease.

The pathological phenomena of tubercle, relating to the gray or granular and the yellow or caseous matter, is familiar to all; but what is tubercle, and whence does it come?

It is to be argued that primarily tubercle is a thing having no objective nature, in the sense that the poison of a rattlesnake, introduced through a bite to the system, is a thing possessed of objectivity.

Neither can it be similarly said of the tubercle bacillus. Tubercle, if not objective, must be a subjective condition, the subjective lying primarily with a perversion of the lymphatic system.

The acceptance of these last two propositions brings us to another corollary, viz., tuberculosis is not a disease, but a symptom—a symptom of lymphatic disturbance or stasis.

For the proving of the above proposition let us consider scrofulosis, struma and lymphoma.

I am aware that there are those who refuse to believe scrofulosis to be identical with tuberculosis, but that they draw the line of demarkation too finely, and that both terms are synonymous with the same condition I trust we shall see hereafter.

Scrofulosis, all will agree, divides its expression into two forms—surgical and medical—or lymphoma and struma. By the term lymphoma is

meant a tumor of a lymphatic gland, hypertrophied by reason of interference with its efferent circulation. All such tumors sooner or later express interference with lymphatic circulation by the effusion of lymph into the surrounding tissues. A lymphoma is scrofula localized. Struma implies torpidity of the lymphatic circulation at large, and is scrofula generalized.

A scrofulous patient is full of obstructions. Abscess is nature's method of clearing up such obstructions. The obstructions exist because there is no capable lymphatic system to remove them. Lymphatic abscess is a symptom of struma.

Tubercle is first met with where lymphoma or lymphangitis has altered the correlative relations of the lymphatic system, and its meaning is that obstruction exists. Tubercle is, therefore, dependent on lymphatic stasis, for without such we never get

tubercle. Tubercle is a symptom of tuberculosis.

It will now, I trust, become evident why scrofulosis and tuberculosis are identical. They are both symptoms of the same lymphatic condition.

Reference to the anatomy of the lymphatic system, as this is of relation to the lungs, shows the former to be delicate in character and much exposed. Beginning with the terminal radicals, the lymphatics accompany the blood vessels until terminating in the bronchial glands at the root of the lung; the efferent vessels from the latter traverse the tracheal and esophageal glands before emptying themselves into the general circulation. The bronchial glands are in a state of change from youth to old age, consequently are in a state of susceptibility. Calcareous degeneration is not uncommon in them. Obstruction in a bronchial

lymphatic implies obstruction in lung metamorphoses. Here, then, we arrive at the point of scrofulosis productive of tubercle; whether the production shall be caseous or miliary may be assumed to depend on the catalytic influences as excited on epithelial or on alveolar structures, or possibly on the state of the system at large.

Pulmonary tuberculosis arising from "taking cold" is primarily a pure local affection. If too wide an area of lymphatics are not involved cure will come with suppuration, as evidenced by the cicatricial repair found in autopsies, before mentioned.

Struma, associated with general lymphatic derangement, is phthisis expending itself in the lung, and is formidable in proportion to the derangement. Struma, it will be remembered, is referred to as scrofula generalized, in distinction from lymphoma, or scrofula localized, both

being dependent on more or less lymphatic stasis.

Recalling the pathology of chronic inflammations in general, it will be remembered that there exists a continued stagnation of lymph and blood, as well as coagulation in their vessels, and a condition of hyperplasia is first induced in the walls of these vessels, and then in the immediately surrounding parts. The process being a continued one must be gradual, for by a sudden and complete stagnation we get active or acute inflammation, and not chronic.

What, then, is the cause of lymphatic stasis, leading to a condition which may result in tuberculosis?

We know that an irritation acutely expressed, as in the case of burns, induces active inflammation. We also know that irritation of a mild degree, applied continuously, induces chronic inflammation, as in the case

of gastric catarrh from the alcoholic habit. We have seen how irritation, increasing the flow of blood to a part, tends to produce hypertrophy of that part; yet, that so long as the efferent vessels carry off the additional waste there is no tendency to ulceration or retrograde tissue metamorphoses, other than that induced by the contraction of new tissue formation, and the secondary cutting off the blood supply. But as soon as the correlation between the efferent and afferent vessels becomes interfered with, and the waste products are left in the part, ulcerative and suppurative changes take place. (This is evidenced in malignant tumors also.)

But, the question whether these chronic inflammations are always induced by irritations, and by what such irritations are caused, is still speculative.

Obviously, lymphatic stasis is the

result of obstruction to lymphatic circulation. Whether this obstruction exists in a coagulation induced by foreign bodies, or by an interference with the normal tone or healthy condition of the arterial blood supply (probably due to a deficiency in oxygen or an oxidizable element, or an increase in the noxious gases of the blood) and, hence, increasing the amount of waste to be carried off by the lymphatics, thus producing sluggishness in their circulation, is, of course, an open question.

One thing is certain—that is the irritation, if such there be, must be applied continuously to a point where the lymphatic stasis is complete enough to cause, of itself, the remaining pathological tissue changes in the disease. This must occupy a considerable period of time, and it is not apparent how a multitude of bacilli, simply as foreign bodies, can remain in any spot of the

rapidly-moving blood current long enough to irritate and thereby produce such coagulation, or stasis, in an open lymphatic system of vessels. Bacilli, entering the blood current, must encounter difficulty of development except when at rest, or the oxygen is limited below the normal, and any such rest of the blood current would imply stasis somewhere in the lymphatics.

It may be well to pause here to consider the germ theory as relating to the production of tuberculosis.

From all that has been demonstrated on the living human organism, germs appear to belong to two great classes:

First, those that are said to produce acute diseases.

Second, those that are said to produce chronic diseases.

This division, which is here drawn for convenience, is apparently one

of intensity of virulence, the former being active and extremely poisonous, but easily destroyed, the latter being less active, but of greater tenacity to life. The former may be illustrated by the Klebs-Loeffler bacillus of diphtheria, and the latter by the Koch bacillus* of tuberculosis.

It has been demonstrated that these germs will reproduce them-

*(The products of bacilli, the toxalbumens, toxins, etc., which are said to be the ptomaines of disease, are duly considered in their connection with this subject; but it is difficult for the writer to understand how a poison, if such exist to cause disease can be found prior to the development of the bacillus, which is said to be the father of the poison; the poison certainly does not produce the bacillus; moreover, it is a pretty well established fact that symptoms of tuberculosis, or indications leading thereto, are more or less advanced before the appearance of the tubercle bacillus is demonstrable, or enters into the symptomatology.)

selves in favorable media outside the body, and, when injected into the blood of susceptible animals, will—what?—produce their specific disease?—no!—reproduce themselves.

If one examine the carcass of a dead dog, or other animal, it will be seen that the body is full of living organisms, which, moreover, are not all of the same kind. It is also of common observation that these organisms are to be found occasionally on living animals, including the human species, who may be the subjects of suppurative lesions. They are found where decomposition is going on in some form. They feed on dead tissue and not on the living. So it is with bacteria. They are to be found in the waste products of the body. They are not able to subsist on healthy living tissues or cells, as evidenced by their destruction in them. Where suppuration and decay exist there will be found the

bacillus. If it is one of the virulent kind found in diphtheria, it may inhabit the waste products of every throat irritated by a "cold," or every open sore or wound it comes in contact with, and may intensify the inflammatory action by its irritative presence. It reproduces nothing but its kind, and it seems probable that the determining factor of its virulence is the rapidity of its reproduction. The healthy throat is so rare, especially in children, that the field is ample for its generative powers. The above is as true of other germs, including the tubercle bacillus. They reproduce themselves in favorable media and atmospheric conditions, and are destroyed by unfavorable conditions.

The experiments conducted on Guinea-pigs and rabbits with cultured tubercle bacilli, to show that Koch's germ induces tuberculosis, do not prove of much value, inasmuch

as these animals are very prone to tubercular processes from any sort of irritative interference with their lymphatic circulation, and especially so when such irritation is applied to a serous membrane, as the peritoneum.

It must be rationally argued that the favorable medium for one kind of bacillus may not be identical with that of another; for example: If the waste elements in the blood serum from cheesy degeneration be a cultivation ground for the tubercle bacillus, it does not necessarily imply that the same would prove a favorable field for the cultivation of the Klebs-Loeffler bacillus, and vice versa. Hence, various forms of germs may appear in different diseases, not because the germs are specific, except as diagnostic phenomena, but because they develop and multiply in different media. It is not every sore, or diphtheritic throat that

gives evidence of a Klebs-Loeffler bacillus, nor every healthy throat that does not contain more or less of them.

Without doubt, we imbibe, daily, germs of many descriptions. We breathe them in the air around us, and swallow them in the food we eat and the water we drink. So long as our excremential organs and the lymphatics are in a healthy condition there can be no spot for germs to congregate and multiply in the blood. Most of them are destroyed by oxygen, and none can germinate in the blood current when oxygen is in its normal quantity or in excess. This is evidenced by the results upon consumptives of living in ozonized atmospheres and high altitudes. Oxygen is the best sterilizer of which we know. Germs, alive or dead, will pass out with the waste products of the body if not hindered, by a stasis in some excremential organ.

Returning to our consideration of lymphatic stasis, we may assume that a cause for lymphatic obstruction may be found in an incompetent excrementory organ, which theory is perfectly in accord with the acknowledgment of the lymphatic organ of tuberculosis. Such organ may be the seat of congenital or acquired incompetency.

Congenital incompetency may be due to a faulty intra-uterine nutrition, tending to dwarf the organ and limit its function; or such incompetency may result from some one of the many unknown causes common to other congenital deformities.

Acquired incompetency must depend on faulty nutrition after birth; this, without doubt, is due to a lower degree of oxidation in the cellular elements of the blood. Whether such lowering of oxidizing power be in consequence of a deficiency of oxidizing agents, according to Church-

ill's theory, or the outcome of loss in the available oxygen to vitalize the tissues, the result is the same; i. e., sluggishness of the efferent circulation by overcharging the lymphatics and veins with waste tissue elements, the ultimate backing up of waste products in the capillaries of the affected part, and, finally, stasis resulting in inflammation, which will be acute or chronic as the completeness of the obstruction be accomplished suddenly or gradually.

It is on complete oxidation that the healthy cellular life of the animal depends. Deoxidation means death. Life is opposed to death, and nature is continually striving to preserve the former by ridding herself of the latter. As soon as an animal cell is deoxidized it becomes devitalized and is crowded out of its relations with living cells. If it can pass out through the excrementory channels, as nature intended it should,

no harm will result, even if many bacteria are feasting on the defunct cell. If it cannot pass out, but is held by stasis or obstruction in relation with living cells of the part, we soon have a collection of such dead material causing irritation to the nerve elements* of surrounding tissue, and inflammatory results.

Deoxidation or other alterations in the chemical equilibrium of the normal human organism may be

*I incline to the opinion that we have, first, a stasis of waste elements; second, a nerve cell paralysis due to the stasis; third, increased blood supply to the part as a result of the paralysis and which, owing to the existing obstruction, brings about the phenomenon—inflammation. Phagocytosis may be easily explained, inasmuch as a leucocyte, if it does not contain enough oxygen to vitalize it, becomes pus, and, hence, waste; if there is oxygen enough in the cell bacteria may be destroyed; otherwise, as a waste cell it may become the prey of the microbe.

brought about in many ways. It would be interesting, in this connection, to note what the different effects are from atmospheric changes upon the chemistry of the blood. Different localities and seasons must have noxious chemical elements, which are detrimental to certain human organisms whose excrementitial powers are below the normal. There is no reason to suppose that chemical elements act differently than their natures, which are known specifically in the laboratory, determine that they must. Why, then, cannot gases in the air act chemically on the gases of the blood to produce disease, and this irrespective of any germ?

It seems nonsensical to assume that a micrococcus alone should have the power of limiting a disease like pneumonia to a solitary lobe of a lung. If microbes play a primary part in the etiology of disease

through the medium of the blood, why do they not occasion uniform inflammations in the various organs or parts of the body and not confine themselves to specific spots, as they are said to do in pneumonia or diphtheria? Blood serum, if it is a developing medium anywhere, must be so throughout the entire body.

It is a fact that in phthisis, or tuberculosis, the venous blood is brighter than normal. This gives evidence that the oxygen imbibed by the red blood-corpuscles, in the lungs, is not properly oxidized in the tissues, and passes over through the capillaries in a free state. This fact would imply that there was a deficiency in an oxidizing element. We know that the blood contains phosphorus in an oxidizable form, and that oxygen has a great chemical affinity for phosphorus; hence, it is not out of reason to infer that in the condition known as tuberculosis

there is a deficiency in oxidizable phosphorus. This fact is proven by the supplying to the blood of a phthisical person an oxidizable form of phosphorus, when it will be seen that the venous blood assumes its naturally darkened hue.

We know that every effort, mental or physical, oxidizes this element in the organism into phosphate, a waste product, and that there is also direct connection between the excretion of the phosphates and the waste of nervous element. The abundance of means for causing an excess of oxidizable phosphorus to become a waste product in the shape of the phosphates gives ample opportunity for a condition of devitalization. This element may not be the only chemical agent in tuberculosis, but that it is a very important one is evidenced by the results of treatment along this line.

The question whether pulmonary

tuberculosis may be communicated by contagion, or infection, does not rest with the proving that a specific germ is found in this disease, for we know that unless a favorable medium is presented such germ will not develop, and that to obtain this medium there must be a condition to be recognized as pathological. If an element of infection exist in any locality, and we take for a criterion the fact that ozonized atmospheres are exempt from tuberculous cases developing in them, then it holds that there must be a proportionate deficiency in oxygen in those localities in which tuberculosis is developed. Ozonized atmospheres are both beneficial to the oxidation of the blood and the destroying of microorganisms. Living in localities where there is a tendency to deficient oxidation of the tissues will, as a consequence, tend to increase waste elements; which, if there be

an incapacitated lymphatic system to carry such waste away from situations where they will do harm (as might follow a pneumonia, laryngitis, or other acute inflammation of the respiratory tract), may cause the starting point of tuberculosis. Bacilli may be communicated if there is found favorable lodging for their development.

The conclusions regarding the etiology of pulmonary tuberculosis which the writer has endeavored to show may be summed as follows:

That pulmonary tuberculosis is due, primarily, to a lymphatic stasis.

That such lymphatic stasis may be congenital, or acquired, as a result of incompetency of excrementory function. That incompetency of excrementory function may be developed from acute diseases, especially of the respiratory organs, or from gradually increasing stasis of waste material due to overtaxation of excre-

mentary organs (where such can be overtaxed), by deoxidation of the tissues.

That the tubercle bacillus is to be regarded as a development, existing simply because favorable media are presented, in the lymphatic stasis, for its cultivation. The development is often some length of time after the stasis is apparent, and in some favorable cases may not develop at all. Bacilli may exert influence on the disease as foreign bodies, similar to other foreign or waste elements; but are not, primarily, causative. They form excellent symptoms of tuberculosis if they develop early enough, but the mere removal of them will not cure the disease, unless such removal implies restored excrementitial function and perfect lymphatic circulation and elimination.

That tuberculosis implies the atrophy of the pancreatic gland in

the majority of cases, but that the dislike of fats by phthisical persons, or those having a consumptive tendency, is the only symptom we can depend upon to show that in the pancreas may lie the origin of this disease.

CONCERNING THE EARLY SYMPTOMS OF PULMONARY TUBERCULOSIS.

The ordinary symptoms of tuberculosis of the lungs are so familiar to physicians at large as not to need consideration in a paper of this character. There is, however, one symptom that presents and accompanies all others, and which, strange to say, has been entirely overlooked, so far as the writer knows, until attention was directed to it by Professor Garretson, in his clinical lectures. This refers to a dislike of fats by people having the phthisical

tendency. Observation will show that fat-eaters are almost entirely exempt from the disease we now consider; while, on the other hand, the information that the appetite and stomach of a patient refuse fats is to be accepted as diagnostic of the condition established, or of dangerous and formidable tendency to it.

The universality of this dislike and refusal of fats by the destined victims of phthisis commands for the peculiarity the first place in a consideration of symptoms.

To what is to be referred the dislike and refusal?

It is a deduction by Dr. Garretson that the pancreas is at fault in all such persons; and that with this gland is not unlikely to be found the origin of all those cases of gradually developing consumption which constitutes the large majority. The writer has fully satisfied himself, out of sufficient data, that too much im-

portance cannot be made of this symptom; for, with its early recognition, before destructive changes have taken place, we have our greatest hopes for successful treatment.

The symptom indicates that there is either faulty secretion from the pancreas, whose function is to furnish a chemical product for the emulsification of fats; or a chemical inferiority of the secretion, by reason of impaired nutrition; otherwise an inability on the part of the lacteals to properly absorb the emulsion.

The first could easily exist in a congenital abnormality of the pancreas. The last would exist in intestinal catarrh.

Another important early symptom, though not pathognomonic, but suggestive, lies in the abnormal weakness generally observed in consumptives. This languor is undoubtedly due to the deficiency in oxidizable phosphorus and the increase in

waste phosphates, dependent on retrograde tissue metamorphoses. It is in this manner that the vitalization of the tissues is impaired, and weakness is a symptomatic result. Too often this symptom is passed over by the physician as an indication of "malaria."

Limited lung and chest expansion, while not essentially an early symptom of phthisis, when it exists is very suggestive, and demands therapeutic attention.

Another of the early symptoms, which has important bearing on the therapy of tuberculosis, is chronic gastric catarrh. More strictly classified, it is a complication, as it is to be regarded as a result of the general systemic disturbance rather than a tubercular lesion of the stomach.

Other physical signs of phthisis are of great importance. Mention of some of them may not be out of place. The signs belonging to the

incipient stage are slight dullness on percussion, broncho-vesicular respiration, or a weakened respiratory murmur, more or less frequency in respiration, some increase in the vocal resonance, increased bronchial whisper occasional subcrepitant rales, pleuretic friction murmur, and abnormal transmission of the heart sounds. Most of these signs are limited to the summit of the chest on one side. As the case advances the physical signs are intensified and augmented. Pectoriloquy may be present before and after the formation of cavities. In the former instance the transmission of speech is by solidified lung; in the latter, it occurs through a cavity. Cavernous sounds accompany the formation of cavities only.

Hemoptysis is likely to happen early in the disease, in the majority of cases; and, if before cavity formation, it is to be regarded as indica-

tive of congestion and rupture of the smaller bronchial vessels. After cavities have formed, bleeding may originate from their walls. Occasionally, in the latter instance, a large vessel may be opened, causing fatal hemorrhage.

If the larynx be involved, huskiness or hoarseness of voice exists. Occasionally the voice may be lost entirely for a space of time.

Rise in temperature is an early sign, and one apt to be attributed to malarial disease on account of its intermittent quality.

Anemia and pallor of countenance are more or less marked from the beginning as a result of impoverished blood.

Tuberculous peritonitis may occur as an acute or chronic affection, and is to be regarded as symptomatic of the pulmonary type only in regard to the tendency it exhibits toward subsequent involvement of the lym-

phatic system in the lung. A peculiar consequence of treatment is the curability of tuberculous peritonitis by laparotomy. This has lately been attributed to the entrance of the staphylococcus through the atmospheric air, and the claim made that the toxalbumen from this micro-organism is antagonistic to the tubercle bacillus. If this were true, we would have no pulmonary tuberculosis; for we are breathing into our lungs, daily, staphylococci enough to generate toxalbumens for a nation; and, if there is any such antagonistic action on tuberculous products in the peritoneum, why not in the lung? The effect of atmospheric air on the serous membrane of the peritoneum seems to have the effect of restoring eliminative function of the efferent vessels; a thing it does not establish in the lung.

Microscopically, a third blood-cor-

puscle has said to have been demonstrated, which is attributed by some to be one of the causative factors of this disease. It is doubtful if this corpuscle be more than an altered leucocyte; possibly occurring as waste, but not at all causative. It remains to be proven whether it be symptomatic or not.

The venous blood of phthisical persons is brighter than normal, unless they are undergoing treatment by hypophosphites.

THE MORTALITY OF TUBERCULOSIS.

Evidence is given that the mortality from this disease is no greater at the present day than it was hundreds of years ago. A recent article was published in an exchange, which I regret having mislaid, showing that, in Jewish history, years

before the Christian era, consumption was as rampant as now. This would tend to refute the idea that tuberculosis is at present on the increase, and at the same time indicate that we possess no better therapy for this affection now than did the ancients.

The Medical Record published some time since an article showing the different occupations predisposing to tuberculosis, and I can do no better than to quote the article here.

“The greatest number of deaths from phthisis occur in workers exposed to irritating substances in the respired air. In Switzerland 10 out of 100 stone cutters die from phthisis. In England of 1000 deaths occurring in these workers, 340 were from phthisis. Tuberculosis makes cruel onslaught likewise in those individuals who habitually occupy a bent posture at their occupations, and in

those who live sedentary and intellectual lives. Of 1000 deaths in Italy among students and seminar-ians 450 died of phthisis—that is, nearly one-half. In England, of a similar number of deaths in printers, 430 died of phthisis.”

“On the other hand, statistics show that it was quite exceptional for this disease to be the cause of death of those who live in open air. Switzerland, of 1000 deaths occurring in outdoor laborers and farmers, not more than one or two die from phthisis. A similar number of deaths in Italy among shepherds and farmers shows only from 44 to 45 deaths.”

“In France the sanitary statistics gathered from 662 towns show that the more the population is conglomerated, so in proportion are the inhabitants gravely infected with tuberculosis.”

TREATMENT.

The recognition of lymphatic stasis as the primal cause of tuberculosis explains the failure to successfully combat the disease with antiseptics. Germs will develop in a favorable medium, and it is impossible to render the medium unfavorable in tuberculosis without removal of the cause of its presence: i. e., lymphatic stasis. We know the effects of urea on the human system when it is retained in the blood by obstruction in a diseased kidney. Why, then, should the same not hold true in relation to waste elements from other parts of the body? Relief and cure coming by restoration of eliminative function are proportioned by the completeness of the latter. Microorganisms depart when the medium in which they thrive is eliminated. The only way to sterilize the germ-ground of tuberculosis is by remov-

ing the waste: i. e., increase oxygen and the function of oxidation by adding elements to the blood which have a natural affinity for oxygen in the organization of healthy tissue. In accomplishing this the actual waste elements are lessened, giving the excreting organs less work to do, thereby allowing nature a chance to absorb excess and repair damage.

As most patients come to us in a more or less advanced stage of tuberculosis, generally after lesions have developed which are demonstrable by physical examination, we have lost the most promising of the periods for inaugurating successful treatment. If, however, the case has not advanced to a point where the lesions which are present may not of themselves prove destructive to life, there is always hope that, with proper care and treatment, recovery may ensue.

In a paper like the present it is

difficult to map out the proper treatment for all cases of phthisis. If there is a disease in the category of chronic affections which in its treatment requires wisdom, skill and judgment, that disease is pulmonary tuberculosis.

The first thing to do is to study the individual case. Temperament, environment and the circumstances of a patient have much to do with success in treatment. If a different climate is required and the financial means to carry out such requirement is lacking, the chances are so much less in a patient's favor. (This is not saying that every patient needs change of abode.)

In nearly every case, no matter at what stage of the disease, it is hopeless to attempt medication without first preparing the stomach and intestines to favor absorption of the remedies used. These organs, where phthisis is present, are usually in a

state of chronic catarrhal inflammation, with more or less thickening of the mucous membrane, thereby rendering digestion and absorption inefficient.

To begin with, it is found of advantage to insert a stomach tube and thoroughly wash out that organ, teaching the patient the art of performing the feat himself. The solution used for this lavage should be a one to 16 dilution of Marchand's hydrozone in warm water. I prefer the hydrozone to the peroxide of hydrogen, because it is double the strength of the latter * and is more constant in its therapeutic qualities. The solution should be allowed to remain for a few minutes in the stomach and then be syphoned out through the tube.

Peroxide of hydrogen or hydrozone acts in two ways on the mucous

* See "Times and Register," December 15, 1894.

membrane of a stomach chronically inflamed. First, it clears the surface of excess of mucus, combining with the pus to form carbon dioxide and nascent oxygen (both gases and easily removed through the tube); second, the oxygen of the preparation acts directly and favorably in stimulating the mucous membrane and underlying glands, thereby favoring the circulation of blood and the performance of function. The good results of lavage of the stomach will be apparent in a short time by an increasing appetite, with better assimilation of food.

Second to this method, for the treatment of catarrh of the stomach in tuberculosis, is internal administration of hydrozone before meals. A dilution of one part hydrozone to 32 of water may be employed in this manner; a glassful of the mixture taken half an hour before meals. If the dilution is too strong the gas gene-

rated will be distressing to the patient. Glycozone (c. p. glycerine treated to 15 times its own volume of ozone) may be used together with the hydrozone as a curative agent.

The building up of the body by nutritious and well-assimilated food is a primal necessity in treating tuberculosis. The disease being one of impaired nutrition, it is obvious that waste of the body must be reduced to the minimum, in order to prevent further lymphatic stasis from excess of excreta.

On the other hand, the production of tissue-forming elements in the blood must be encouraged. Oxygen is not only to be carried into the tissues, but utilized there. Oxidation is essential to cell life.

The foods necessary to the formation of tissue may be classified as natural and chemical, or therapeutical (all being essentially chemical).

By the term natural food is here

intended such articles of diet as, by process of digestion, are converted into pabulum from the ordinary table supplies, in contra-distinction from chemical food medicinally employed.

To the former class belong animal and vegetable foods and oil; to the latter the hypophosphites, iron, lime and soda.

Discussion of diet and phthisis has been elaborated in so many monographs on the subject of feeding that only such articles will be mentioned here as pertain to the therapy of the disease.

A nitrogenous diet is essential, but care must be taken not to oversupply it, for the reason that a too highly nitrogenized diet (animal food) throws upon the system excess of eliminative work. All nitrogenous matter, which is in excess of that directly applied to growth and reconstruction of the body, undergoes a process of retrograde metamorphosis,

taxing the excrementitial organs, and cannot fail to do harm. Where exercise and free circulation can be maintained nitrogenous elements are best borne.

It devolves upon the physician to point out suitable foods to be taken, but it depends upon the system of his patient whether his recommendations can be carried out. It is not good to force any rigid dietetic regulations, founded upon the number of grains of carbon and nitrogen necessary to support life, as may be done in health.

If we consider force production, resulting from different articles of food, it will show that fats, especially cod liver oil and olive oil, lead the list in value. The inability of phthysical persons to eat fat is a serious drawback to its use as a therapeutic food. Where chronic impairment of power exists in the digestive organs it is not always wise to force an article

of food against the appetite and desires of the patient. Fatty foods pass the stomach to undergo emulsification, or preparation for absorption, in the small intestines. When fats are fresh, and not taken in excess, they may pass on without giving any sign of nausea or sickness of the stomach. It is important, therefore, that small doses of oil be given in this disease to begin with, and an increase be made gradually. Olive oil is often better borne by the stomach than cod liver oil. Petroleum oils also have value. The stomach and intestines, being in a catarrhal state, are not calculated to assimilate fats for proper absorption by the lacteals, when given in excess, or even the ordinary dose, often increase the waste to be eliminated by their production of volatile fatty acids and excite derangement.

Having first treated the stomach in the way suggested, we are prepared

to apply fats with greater hopes of beneficial results. Regarding the various emulsions of cod liver oil and other oily preparations on the market, it may be said that all pre-emulsified fats have preference to the crude oils, providing they contain enough of the fatty elements for tissue building. Oil treated with hydrogen makes an excellent preparation of value in certain cases.

Next to oil in the dietetic management of tuberculosis is beef. What is necessary in the administration of beef elements to a consumptive is not to get the greatest amount into him, but to have what he does take advantageous to him. Over-charging the blood with tissue-forming elements means overcrowding the eliminative organs, and these are to be freed from an excess of pabulum, as we shall see when speaking of medicinal therapy. It is not necessary to discuss here the different values

of beef preparations in detail; but one method of application of this food may be mentioned, because it is found of more worth than the ordinary market products. I refer to blood taken from living animals. This food, representing the elementary vitalizing fluid, is an ideal tissue-builder. In disease we must consider the chemical alterations dependent upon an existing malady, and govern our therapy accordingly. Healthy living blood cells can supply to a wasted part, in union with oxygen, reconstructive material. Such food to be palatable must be perfectly kept, and adapted for internal use. The best preparation of this kind is represented by bovine, which is simply beef blood, drawn from the living animal and hermetically sealed, acting quite as beneficially as transfusion, and with less danger. Beef extracts have certain values, but are not in the same category with the above.

A new product has recently been brought to the attention of the profession from Germany. It is a concentrated albumose, consisting of the active nourishing elements of meat, called somatose. It is said to contain eight times the strength of beef and to be readily digested, an important point in the treatment of all wasting diseases.

Milk is an article of diet which includes the fats without taxing the digestive powers. It is commonly best borne by being boiled. The addition of soda water (aerated water) will make it more palatable to those phthisical persons who do not like milk. Hot milk is an excellent remedy in paroxysms of coughing, especially during the night, with scanty or thickened expectoration met in the later stages of this disease. In this connection are to be considered the various milk preparations as being of more or less value.

Where there is much fever in pulmonary tuberculosis the carbohydrates are the foods to be most depended upon; they do not call for the excessive eliminative work of the nitrogenous compounds, and are easily assimilated by the digestive organs.

Chemical foods being here considered, those elements which are necessary to replace the inorganic ingredients of the blood may be represented by the hypophosphites, iron, lime and soda.

We have seen why the venous blood of a phthisical person is brighter than normal, inasmuch as there is a loss of oxidizing element (i. e., oxidizable phosphorus) and a carrying over of oxygen in the free state through the capillaries; hence it is necessary to supply this loss to the blood. This subject has been so thoroughly demonstrated by Dr. Churchill, of Paris, in his treatise

on the hypophosphites in phthisis, and so well elaborated by R. W. Gardner, of New York, that it seems unnecessary to enter into detail on this treatment. A few points may be well quoted here, however, for the purpose of cautioning the profession against the misuse of Dr. Churchill's ideas. First, "the hypophosphites of soda, lime and quinia are the only ones indicated in phthisis." Second, "the hypophosphite must be chemically pure and uncombined." Third, "the hypophosphite should only be in the form of a syrup, because this is the only vehicle which will protect it from oxidation in the air." Fourth, "soda is indicated in the incipient stage and lime in the second and third stages, with exceptions." Lime reduces expectoration; soda favors it. Judgment in using both is necessary. Fifth, "hypophosphites should not be given with any other remedy." Sixth,

seven grains in 24 hours is given as the maximum dose in phthisis. Seventh, "plethora must be avoided, for it tends to hemorrhage, and, hence, cod liver oil, iron and stimulants, when used, should only follow the discontinuance of the hypophosphites." Eighth, "complications requiring treatment indicate a discontinuance of the hypophosphites while such treatment is being given."

Iron in phthisis is necessary occasionally. The anemia of this disease being dependent, however, on a different cause from those conditions which bring about anemia through faculty correlation of the constituents of the red blood corpuscle, as seen in chlorosis, the results from iron treatment in phthisis are often disappointing.

CLIMATE.

Ozone is an indispensable aid to the successful treatment of pulmonary tuberculosis. Cities, which have been cleared of all forest growth are not the ideal locations for the consumptive to dwell in. Vegetation, in healthy and luxuriant growth, absorbs the carbon dioxide and gives out oxygen. Other elements also enter into the question of climate for consumptives, such as dryness of the air, altitude and drainage.

Without entering into a discussion of this subject it may here be stated that the only way to test a given location recommended a phthisical person to reside in, is for such an one to try the various localities, if practicable, and make a permanent abode in the one which agrees best with his individual constitution. Colorado, as

a health resort for consumptives, is no place for a victim of the third stage of the disease. Fibroid phthisis and bronchial irritation, on the other hand, do not contraindicate residence there. Except in excessively high altitudes the liability to hemorrhage is not greater than in other localities.

North Carolina is fast coming to the front as a health resort for the tuberculous, and properly, too. The region in and around Southern Pines presents all the advantages of climatic regularity desirable in any stage of the disease. The soil is sandy, the air dry, an invigorating feeling exists from the ozonized atmosphere, and, being situated in the midst of the pine districts of North Carolina, there is every element conducive to health in the locality.

Southern California has long been one of the most famous health resorts in America. Its balmy atmos-

phere, absence of dampness and equable temperature make it a very desirable place in which to reside. Other localities might be mentioned, but of these the writer has personal knowledge.

The application of oxygen inhalations, while of some value in the treatment of phthisis, is by no means as satisfactory as the residence in ozonized atmospheres—the probable reason of this being that oxygen given by inhalation through an apparatus cannot be constantly applied, and the good that results, for a few hours after this mode of administration has been employed, is more than counterbalanced by the necessity of breathing the normal atmospheric air of the locality of residence. In other words, the oxygen is not applied a sufficient length of time to do more than temporary good. Could a room be so arranged to furnish the patient a continuous ozonized atmos-

phere the results of the cabinet method of treatment might be improved.

HYGIENE AND EXERCISE.

Important as are proper diet and air for consumptives, no less so are regulated exercise and hygiene. It is a well-known fact that the more a phthisical person can live out of doors the better are his chances for recovery. Protective clothing should always be worn next the skin. A daily plunge bath in cool water followed by invigorating friction of the skin with a coarse towel conduces to free action of the sweat glands and assists active elimination.

Moderate dumb-bell exercise, or with chest weights, assists in establishing freer circulation. Fatigue should not be encouraged in the performance of these duties, but the patient is to be instructed to stop short

of weariness. Lung development should be practiced by drawing in air through a quill until the lungs are fully inflated, then allowing the air to be as gradually expired.

An important hygienic point in the treatment of tuberculous cases is proper clothing. A great number of consumptives think they must clad themselves heavily, especially about the chest, and, with this unfortunate idea, they generally wear two or three undershirts of wool, in addition to a chest protector. The result is that the skin of the chest is kept in an unnecessary state of excessive perspiration, which renders an individual the more susceptible to contract numerous "colds." The whole body should be evenly and warmly clad; silk and wool flannel to be preferred next the skin. Severity of weather to an extent demanding excessive weight of cloth-

ing indicates that a patient should seek a warmer clime for a residence.

Out-of-door life is essential for the welfare of phthisical persons. The sudden changes in temperature experienced by those who live in our northern districts, caused not only by storms, but by the relation between in-door and out-of-door heat, imply additional dangers to the contraction of "colds." For this reason, if for no other, should the consumptive live in warm climates where he can remain in the open air as much as possible.

Sea voyages are useful in a proportion of cases. The exposure and out-of-door life, necessarily led in a long sea trip, are very beneficial.

MEDICATION.

Elimination is the first principle to consider in the medicinal treatment of phthisis, and this relates with the extent of pathological changes which have taken place in a given case. It is essential that an obstruction, wherever it is, be removed. Elimination does not necessarily imply that associate excrementory organs must be called into excessive activity in order that the system may be relieved of stagnant waste. The chances are that good results from this practice will be wanting. Elimination must come gradually by judicious employment, from time to time, of agents which will promote absorption of the pathological agent obstructing. Nutritious elements causing obstruction by becoming excess of waste must be avoided. On the

other hand, oxidation and organization of new tissue should be encouraged. Cure of tuberculous deposits will come by suppuration and absorption, and for this reason we need alteratives, because such pathological changes exist.

To a large degree cure can be accomplished by dietetic and climatic treatment tending to advance nutrition.

One of the most satisfactory methods of elimination and alteration which have been given the profession in late years bearing on this disease is a formula advocated by Dr. Barclay, of Pittsburg, and consisting of the bromide of gold and arsenic. Arsenic is a well-known alterative in phthisis and highly efficient as a tissue builder. The late Dr. E. A. Wood presented the therapeutic value of this formula, in all wasting diseases, two years back, in a paper before a Western medical association, the

.

subject of which was so thoroughly circulated about the country that its quotation here is unnecessary. Practical experience with this formula bears out all the claims made for it. It is not to be considered as a specific for tuberculosis, in any sense of the word, but that it is an active eliminator and alterator there can be no doubt in the minds of those who have used it.

Iodine has long been established as useful in the treatment of tuberculous conditions. The syrup of hydriodic acid, as prepared by R. W. Gardner, gives the most serviceable form for internal administration, as it is less irritating to the stomach. Locally iodine may be applied to the lung area by inhalation with ether. Dr. Garretson advocates a few drops of the compound tincture of iodine in equal portion of sulphuric ether, to be held in the palm of the hand and placed close to the nose,

when the vapor of the ether inspired will carry the iodine to all accessible portions of the lung.

Other alteratives may be employed with benefit when indicated.

Symptomatic medication for pulmonary tuberculosis, as with most chronic ailments, is directed to a variety of complications which arise during the course of the disease. For the indications in which it is necessary to employ symptomatic medication the physician is to be governed by the individual case in hand. As a rule, the least medication employed is best, attention being directed to nutritional and climatic treatment.

Catarrh of the stomach has been mentioned and its treatment indicated. Catarrh of the nasal passages may be efficiently combated by a diluted hydrozone spray or Carl Seiler's formula. In acute exacerbations of this affection I have seen good

temporary results from the employment of the following formula:

R. Cocaine hydrochlor.	grains vi
Bismuth subcarb.	drachms, ss
Talc.	drachms, iss

M. thoroughly.

Sig. Snuff every four hours.

In chronic catarrh a mild astringent powder or boric acid may be added to the above. Atomization of medications apply to the topical treatment of nasal catarrh. Mr. Marchand has invented an efficient instrument with an attachment for applying ozone, made from glycerine and peroxide of hydrogen.

Anorexia, dependent on a catarrhal state of the stomach or the general debility of phthisis, is not to be taken as an indication that food is not required. This state is often overcome by treatment of the stomach, combined with small but frequent feedings. Such agents as pro-

mote digestion, papoid, pepsin, pancreatin and one of the dilute mineral acids, aid the assimilation of food in this condition and indirectly promote appetite. Gaseous eructations call for the employment of bismuth in addition to the above.

Attacks of pleuritic pain require sinapisms to the chest wall and morphia. When the latter is used less discomfort will be experienced afterward if atropia is combined.

Fever, unless excessive, rarely requires treatment. The employment of phenacetin often prevents active fever and quiets the nervous system beside.

Night-sweats, when excessive, tax the patience of the physician, and it will be found that no drug can be relied upon to prevent this disagreeable phenomenon in every case. Among those holding an efficient position are ergot, atropia, aromatic sulphuric acid and agaric.

Cough does not call for active treatment. Occasionally, when hard and dry, quieting preparations may be necessary. Nauseating expectorants should not be given. Paregoric and the preparations of ammonia are sometimes beneficial. When cough is accompanied with abundant expectoration I have seen good results from the smoking of pure cubebs; the smoke being drawn well into the lungs. Even ladies soon become accustomed to the use of this remedy.

Bronchial hemorrhage requires active treatment. When due to a congestive state, remedies applicable to the lessening of blood pressure are indicated. If due to ulceration contraction of the lumen of blood-vessels should be encouraged. During the hemorrhage common salt in large doses is generally efficient. Ergot, or ergotin, hypodermically administered, acetate of lead or tannic acid are recommended. Temporary liga-

tion of a limb is often useful in controlling hemorrhage. This should only be employed during the presence of the physician.

Symptomatic medication, in this article, has only been outlined. The circumstances of the patient and the peculiarity of this disease require that the physician be one whose sound judgment and educated sense is equal to the task of meeting any symptomatic indication with the most efficient remedy at his command. The most hopeless cases to treat are among the poor, where poverty deprives the victim of phthisis of the necessaries for even palliative treatment.

The primal thought must be directed to the restoration of perfect elimination, especially in the localities obstructed. For this reason the consideration of antiseptic medication has been omitted, the author recognizing the fact that very little

good has been accomplished through this plan of treatment. Certain drugs of the antiseptic class have seemed beneficial at times, especially to appetite and digestion. Their action may in some degree be attributed to stimulation of elimination.

It cannot confidently be expected that any specific will ever be found for the cure of this disease. Phthisis arises from a combination of conditions which require a combination of therapeutical measures to eradicate. Good sanitation and cleanliness are essential for health among the well, and much more important are these virtues among the sick.



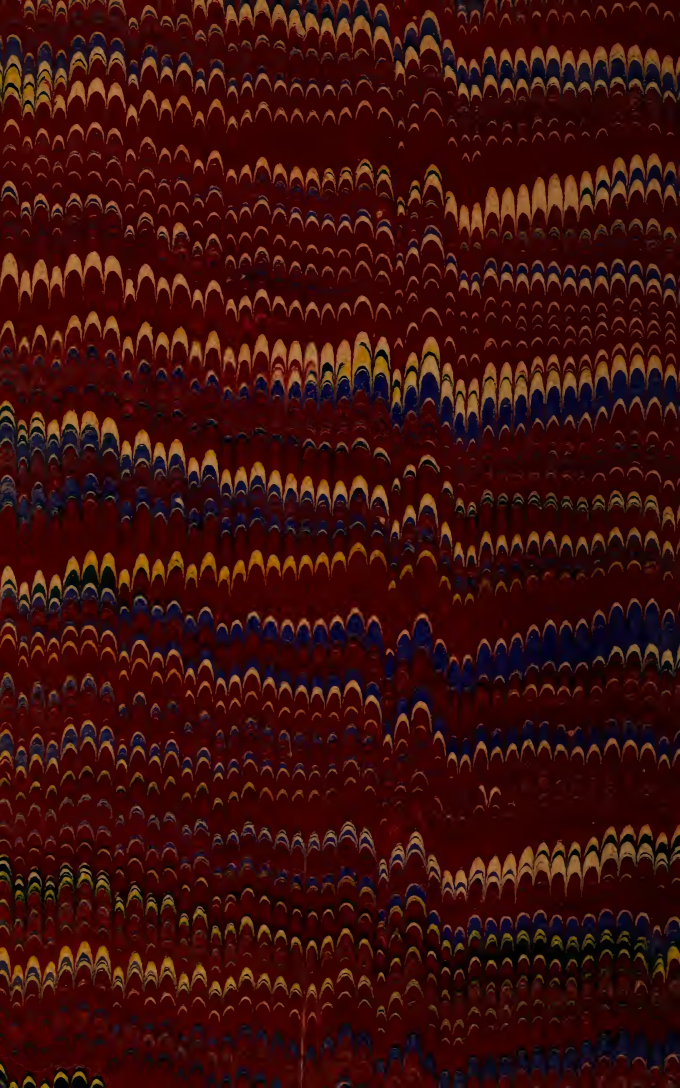
PUBLISHED BY

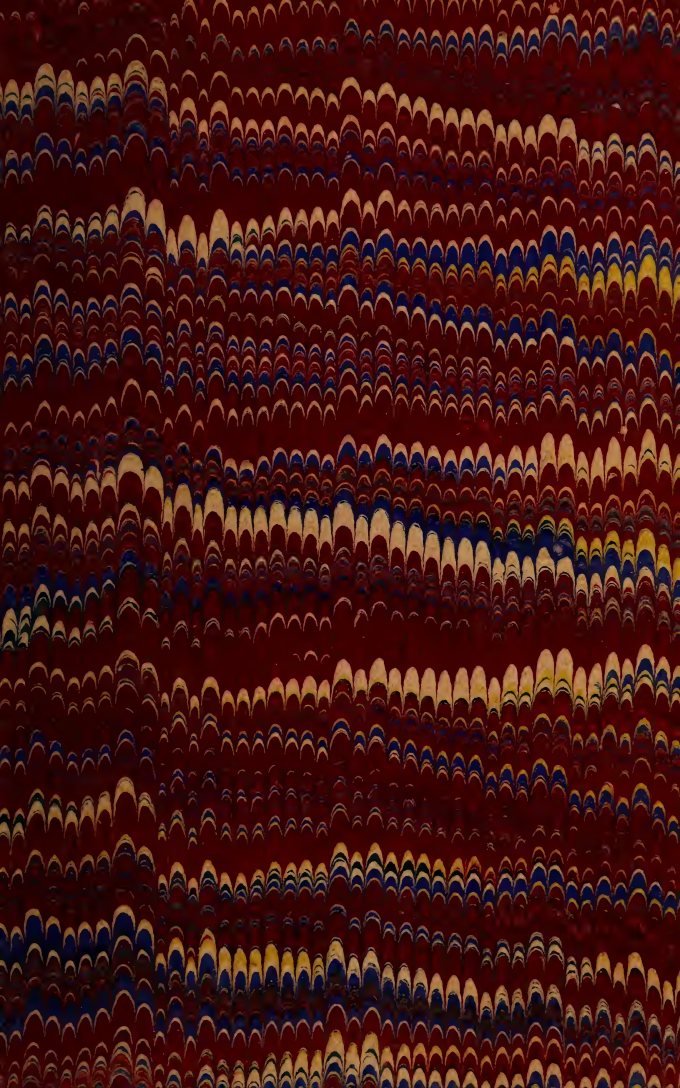
The Medical Publishing Co.,

718 Betz Building,

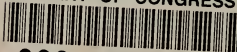
PHILADELPHIA.

1895.





LIBRARY OF CONGRESS



0 029 561 287 3